

CAIP 2023 Program

Monday 25 September 2023

TUTORIALS

09:00 - 10:30	Tutorial 1: Room: Mermaid	Multimodal video analysis for understanding human behaviour
		<i>Estefanía Talavera Martínez</i> , University of Twente
10:30 - 11:00	Break	
11:00 - 12:30	Tutorial 2: Room: Mermaid	Stochastic gradient descent (SGD) and variants: Evolution and recent trends
		<i>Paul A. Rodriguez</i> , Pontifical Catholic University of Peru
12:30 - 14:30	Break	
14:30-16:00	Tutorial 3: Room: Mermaid	Video Analysis Methods for Recognizing Multiple Human Activities
		<i>Marios S. Pattichis</i> , University of New Mexico
16:00 - 16:30	Break	
16:30 - 18:30	Tutorial 4: Room: Mermaid	Using digital tools for health and improving digital skills of health professionals in oncology - Needs assessment for clinical and non-clinical professionals
		<i>Efthymoulos Kyriacou</i> , Cyprus University of Technology

CONTEST

Room: Mermaid

19:00 - 19:45	PAR Contest 2023	Pedestrian Attributes Recognition with Multi-Task Learning
	Chairs: <i>Antonio Greco</i> , University of Salerno, Italy <i>Bruno Vento</i> , University of Napoli, Italy	
19:00 - 19:15	“PAR Contest 2023: Pedestrian Attributes Recognition with Multi-Task Learning” <i>Antonio Greco and Bruno Vento</i>	
19:15 - 19:45	“Evaluation of a Visual Question Answering Architecture for Pedestrian Attribute Recognition” <i>Modesto Castrillon-Santana, Elena Sanchez-Nielsen, David Freire-Obregon, Oliverio J. Santana, Daniel Hernandez-Sosa and Javier Lorenzo-Navarro</i>	

20:00 - 22:00: Welcome Cocktail

Tuesday 26 September 2023

Room: Mermaid

09:00 - 10:30	Keynote Lecture #1:	Improving contour detection by surround suppression of texture
	Prof. Nicolai Petkov <i>Bernoulli Institute of Mathematics, Computer Science and Artificial Intelligence, University of Groningen, Netherlands</i>	
	Chair: <i>Andreas Lanitis</i> , Cyprus University of Technology	

10:30 - 11:00: Coffee Break

11:00 - 12:30	Deep Learning	
	Chair: <i>Christos Kyrkou</i> , KIOS Center of Excellence	
11:00 - 11:15	“True Rank Guided Efficient Neural Architecture Search for End to End Low-Complexity Network Discovery” Shahid Siddiqui, Christos Kyrkou and Theo Theocharides	
11:15 - 11:30	“Explainability-enhanced neural network for thoracic diagnosis improvement” Flavia Costi , Darian Onchis, Codruta Istin and Gabriel V. Cozma	
11:30 - 11:45	“A comparison of neural network-based super-resolution models on 3D rendered images” Rafael Berral-Soler, Francisco J. Madrid-Cuevas, Sebastián Ventura, Rafael Munoz-Salinas and Manuel J. Marin-Jimenez	
11:45 - 12:00	“Safe Robot Navigation in Indoor Healthcare Workspaces” Eleftherios G. Vourkos , Evropi Toulkeridou, Antreas Kourris, Raquel Julia Ros, Eftychios G. Christoforou, Nacim Ramdani and Andreas S. Panayides	
12:00 - 12:15	“EMBiL: An English-Manipuri Bi-lingual benchmark for scene text detection and language identification” Veronica Naosekpm , Mushtaq Islam, Amul Chourasia and Nilkanta Sahu	
12:15 - 12:30	“Low-dimensionality information extraction model for semi-structured documents” Djedjiga Belhadj , Abdel Belaid and Yolande Belaid	

12:30 - 14:00: Lunch Break

14:00 - 15:30	Machine learning for image and pattern analysis I
	Chair: <i>Nicolas Tsapatsoulis</i> , Cyprus University of Technology
14:00 - 14:15	“Downsampling GAN for Small Object Data Augmentation” <u>Daniel Cores</u> , Victor M. Brea, Manuel Mucientes, Lorenzo Seidenari and Alberto Del Bimbo
14:15 - 14:30	“Model regularisation for skin lesion symmetry classification: SymDerm v2.0” <u>Lidia Talavera-Martinez</u> , Pedro Bibiloni, Aniza Giacaman, Rosa Taberner, Luis Javier Del Pozo Hernando and Manuel Gonzalez-Hidalgo
14:30 - 14:45	“Robust Adversarial Defense: Use of Auto-Inpainting” Shivam Sharma, Rohan Joshi, Shruti Bhilare and <u>Manjunath V. Joshi</u>
14:45 - 15:00	“Generalized Median Computation for Consensus Learning: A Brief Survey” <u>Xiaoyi Jiang</u> and Andreas Nienkotter
15:00 - 15:15	“Efficient Representation Learning for Inner Speech Domain Generalization” <u>Han Wei Ng</u> and Cuntai Guan
15:15 - 15:30	“Using Diffusion Models for Dataset Generation: Prompt Engineering vs. Fine-tuning” Roy Voetman, Alexander van Meekeren, <u>Maya Aghaei</u> and Klaas Dijkstra

15:30 - 16:00: **Coffee Break**

16:00 - 18:00	Machine learning for image and pattern analysis II
	Chair: <i>Marios Pattichis</i> , University of New Mexico
16:00 - 16:15	“Towards Robust Colour Texture Classification with Limited Training Data” <u>Mariya Shumska</u> and Kerstin Bunte
16:15 - 16:30	“Explaining StyleGAN Synthesized Swimmer Images in Low-Dimensional Space” Ashkan Mansouri Yarahmadi, Michael Breuß and <u>Mohsen Khan Mohammadi</u>
16:30 - 16:45	“Interpolation Kernel Machines: Reducing Multiclass to Binary” Jiaqi Zhang, Cheng-Lin Liu and <u>Xiaoyi Jiang</u>
16:45 - 17:00	“Performance Assessment of Fine-tuned Barrier Recognition Models in Varying Conditions” Marios Thoma, Harris Partaourides, Ieswaria Sreedharan, Zenonas Theodosiou, Loizos Michael and Andreas Lanitis
17:00 - 17:15	“Keyrtual: A Lightweight Virtual Musical Keyboard based on RGB-D and Sensors Fusion”

	Danilo Avola, Luigi Cinque, Marco Raoul Marini, Andrea Princic and <u>Valerio Venanzi</u>
17:15 - 17:30	“Performance characterization of 2D CNN features for partial video copy detection” <u>Van-Hao LE</u> , Mathieu Delalandre and Hubert Cardot
17:30 - 17:45	“Semi-Automated Patch-based Segmentation of Different Size Groups of Brain Metastases in MRI Images” <u>Vangelis Tzardis</u> , Christos P. Loizou and Efthymoulos Kyriacou
17:45 - 18:00	“Texture analysis contribution to evaluating the common carotid artery’s stroke risk using structural equation modeling” <u>George Evripides</u> , Paul Christodoulides and Christos P. Loizou

20:00 - 22:00: Gala Dineer

Wednesday 27 September 2023

Room: Mermaid

09:00 - 10:30	Keynote Lecture #2:	Semiconductor Chips in the Center of Geopolitical Competition
	Chrysostomos L. Nikias, Ph.D <i>President Emeritus and Professor of Electrical Engineering Malcolm R. Currie Chair in Technology and the Humanities Director, The Institute for Technology Enabled Higher-Education University of Southern California</i>	
	Chair: <i>Nicolas Tsapatsoulis</i> , Cyprus University of Technology	

10:30 - 11:00: **Coffee Break**

11:00 - 12:30	Object Recognition and Segmentation	
	Chair: <i>Christos Loizou</i> , Cyprus University of Technology	
11:00 - 11:15	“Domain-Adaptive Data Synthesis for Large-Scale Supermarket Product Recognition” <u>Julian Strohmayer</u> and Martin Kampel	
11:15 - 11:30	“PSM-PS: Part-based Signal Modulation for Person Search” <u>Reem Abdalla Sharif</u> , Mustansar Fiaz and Rao Muhammad Anwer	
11:30 - 11:45	“Fast Video Instance Segmentation via Recurrent Encoder-based Transformers” <u>Omkar Thawakar</u> , Alexandre Rivkind, Ehud Ahissar and Fahad Shahbaz Khan	
11:45 - 12:00	“Fast Context Adaptation for Video Object Segmentation” <u>Isidore Dubuisson</u> , Damien Muselet, Christophe Ducottet and Jochen Lang	
12:00 - 12:15	“ALPR - A Method for Identifying License Plates using Sequential Information” <u>Akshay Bakshi</u> and Sandeep S. Udmale	
12:15 - 12:30	“Non-separable Moments in 3D” Jan Flusser, <u>Tomás Suk</u> , Leonid Bedratyuk and Tomás Karella	

12:30 - 14:00: **Lunch Break**

14:00 - 15:30	Biometrics - Human pose estimation - Action recognition
	Chair: <i>Andreas Lanitis</i> , Cyprus University of Technology
14:00 - 14:15	“A Systematic Approach for Automated Lecture Style Evaluation Using Biometric Features” <u>Eleni A. Dimitriadou</u> and Andreas Lanitis
14:15 - 14:30	“Highly crowd detection and counting based on curriculum learning” Lidia Fotia, Gennaro Percannella, <u>Alessia Saggese</u> and Mario Vento
14:30 - 14:45	“Race Bias Analysis of Bona Fide Errors in Face Anti-spoofing” <u>Latifah Abduh</u> and Ioannis Ivrisstzimis
14:45 - 15:00	“Fall detection with event-based data: A case study” <u>Xueyi Wang</u> , Nicoletta Risi, Estefania Talavera, Elisabetta Chicca, Dimka Karastoyanova and George Azzopardi
15:00 - 15:15	“Towards Accurate and Efficient Sleep Period Detection using Wearable Devices” <u>Fatemeh Jokar</u> , George Azzopardi and Joao Palotti
15:15 - 15:30	“RLSTM: A Novel Residual and Recurrent Network for Pedestrian Action Classification” <u>Soulayma Gazzeh</u> , Liliana Lo Presti, Ali Douik and Marco La Cascia

15:30 - 16:00: **Coffee Break**

16:00 - 18:00	Biomedical Image and Pattern Analysis
	Chair: <i>Efthymoulos Kyriacou</i> , Cyprus University of Technology
16:00 - 16:15	“Temporal Sequences of EEG Covariance Matrices for Automated Sleep Stage Scoring with Attention Mechanisms” <u>Mathieu Seraphim</u> , Paul Dequidt, Alexis Lechervy, Florian Yger, Luc Brun and Olivier Etard
16:15 - 16:30	“A Complete AI-based System for Dietary Assessment and Personalized Insulin Adjustment in Type 1 Diabetes Self-Management” <u>Maria Panagiotou</u> , Ioannis Papathanail, Lubnaa Abdur Rahman, Lorenzo Brigato, Natalie S. Bez, Maria F. Vasiloglou, Thomai Stathopoulou, Bastiaan E. de Galan, Ulrik Pedersen-Bjergaard, Klazine van der Horst and Stavroula Mouggiakakou
16:30 - 16:45	“COFI - Coarse-semantic to fine-instance unsupervised mitochondria segmentation in EM” <u>Anusha Aswath</u> , Ahmad Alshahaf, B. Daan Westenbrink, Ben N. G. Giepmans and George Azzopardi

16:45 - 17:00	<p>“Empirical study of attention-based models for automatic classification of gastrointestinal endoscopy images”</p> <p>Ricardo Espantaleón-Pérez, Isabel Jiménez-Velasco, Rafael Muñoz-Salinas and <u>Manuel J. Marín-Jiménez</u></p>
17:00 - 17:15	<p>“Classification of Breast Micro-Calcifications as Benign or Malignant using Subtraction of Temporally Sequential Digital Mammograms and Machine Learning”</p> <p><u>Kosmia Loizidou</u>, Galatea Skouroumouni, Gabriella Savvidou, Anastasia Constantinidou, Christos Nikolaou and Costas Pitris</p>
17:15 - 17:30	<p>“Fourier Descriptor Loss and Polar Coordinate Transformation for Pericardium Segmentation”</p> <p><u>Lu Liu</u>, Christoph Brune and Raymond Veldhuis</p>
17:30 - 17:45	<p>“Stroke Risk Stratification Using Transfer Learning on Carotid Ultrasound Images”</p> <p><u>Georgia D. Liapi</u>, Christos Markides, Christos P. Loizou, Maura Griffin, Andrew Nicolaidis and Efthymoulos Kyriacou</p>
17:45 - 18:00	<p>“A Comparative Study of Explainable AI models in the assessment of Multiple Sclerosis”</p> <p><u>Andria Nicolaou</u>, Nicoletta Prentzas, Christos P. Loizou, Marios Pantzaris, Antonis Kakas and Constantinos S. Pattichis</p>

Thursday 28 September 2023

Room: Mermaid

09:00 - 10:30	General Vision - AI Applications I
	Chair: <i>Andreas Panayides</i> , CYENS Center of Excellence
09:00 - 09:15	“Biometric Recognition of African Clawed Frogs” <u>Fabian L. Prins</u> , Dario Tomanin, Julia Kamenz and George Azzopardi
09:15 - 09:30	“Teacher-Student synergetic knowledge distillation for detecting alcohol consumption in NIR iris Images” Sanskar Singh, Ravil Patel, Vandit Tyagi and <u>Avantika Singh</u>
09:30 - 09:45	“Knowledge Guided Deep Learning for General-Purpose Computer Vision Applications” Youcef Djenouri, Ahmed Nabil Belbachir, Rutvij H. Jhaveri and Djamel Djenouri
09:45 - 10:00	“Teaching Computer Programming with Mathematics for Generating Digital Videos and Machine Learning Optimization” <u>Marios S. Pattichis</u> , Hakeoung Hannah Lee, Sylvia Celedon-Pattichis, Carlos Lopez-Leiva
10:00 - 10:15	“Classification of Honey Pollens with ImageNet Neural Networks” <u>Fernando López-García</u> , José Miguel Valiente-González, Isabel Escriche-Roberto, Marisol Juan-Borrás, Mario Visquert-Fas, Vicente Atienza-Vanacloig and Manuel Agustí-Melchor
10:15 - 10:30	“Defocus Blur Synthesis and Deblurring via Interpolation and Extrapolation in Latent Space” Ioana Mazilu, <u>Shunxin Wang</u> , Sven Dummer, Raymond Veldhuis, Christoph Brune and Nicola Strisciuglio

10:30 - 11:00: Coffee Break

11:00 - 12:30	General Vision - AI Applications II
	Chair: <i>Zenonas Theodosiou</i> , Cyprus University of Technology
11:00 - 11:15	“Unsupervised Representation Learning in Partially Observable Atari Games” <u>Li Meng</u> , Morten Goodwin, Anis Yazidi and Paal Engelstad
11:15 - 11:30	“Structural Analysis of the Additive Noise Impact on the α-tree” <u>Baptiste Esteban</u> , Guillaume Tochon, Edwin Carlinet and Didier Verna
11:30 - 11:45	“Augmented Reality for indoor localization and navigation: the case of UNIPi AR Experience” <u>Dionysios Koulouris</u> , Andreas Menychtas and Ilias Maglogiannis

11:45 - 12:00	“A Benchmark and Investigation of Deep-Learning-Based Techniques for Detecting Natural Disasters in Aerial Images” Demetris Shianios, Christos Kyrkou and Panayiotis S. Kolios
12:00 - 12:15	“Perceptual Light Field Image Coding with CTU Level Bit Allocation” Panqi Jin, <u>Gangyi Jiang</u> , Yeyao Chen, Zhidi Jiang and Mei Yu
12:15 - 12:30	“A Comparative Performance Assessment of Different Video Codecs” <u>Ioanna Valiandi</u> , Andreas S. Panayides, Efthymoulos Kyriacou, Constantinos. S. Pattichis, Marios S. Pattichis

12:30 - 12:45: **Closing**